



Ethernet

CentreCOM Micro Transceivers

- IEEE 802.3 compliant and Ethernet Version 1.0 and 2.0 compatible
- Direct Attachment Unit Interface (AUI) connection
- Slim-line versions (AT-MX10S, AT-210TS) for improved mechanical fit for Macintosh, Sun SPARC stations and IBMRS/6000 workstations
- Switch-selectable SQE test (all models) and LED (AT-MX10, AT-MX10S, AT-210T, AT-210TS)
- Polarity detection and correction (AT-MX20T, AT-210T, AT-210TS) and LED (AT-210T, AT-210TS)
- Link integrity test function and LED (AT-MX20T, AT-210T, AT-210TS)
- Five-year warranty



10Base-2 MAU

10Base-2 MAU, Slim-line

10Base-T MAU

10Base-T MAU

10Base-T MAU, Slim-line

AT-MX10

AT-MX10S

AT-MX20T

AT-210T

AT-210TS

IEEE 802.3 COMPLIANT/ETHERNET COMPATIBLE

The CentreCOM Micro Transceivers are 10Base-2 and 10Base-T compliant transceivers designed to reduce Ethernet cabling costs. Compact size allows these transceivers to connect directly to the workstation, bringing thin Ethernet or Unshielded Twisted Pair (UTP) wiring directly to the workstation. With UTP and inexpensive coax network media, distances up to 100 meters between workstations can be supported using UTP, and up to 185 meters using coax.

The 10Base-2 compliant AT-MX10 and AT-MX10S transceivers use an industry-standard Ethernet transceiver chip that guarantees IEEE 802.3 compliance. The 10Base-T compliant AT-MX20T, AT-210T and AT-210TS transceivers are also guaranteed compliant by the use of standard ICs.

On all models Signal Quality Error (SQE)/Heartbeat test can easily be enabled or disabled via an externally accessible switch. Additionally, all models have integral jabber lock-up prevention circuitry and a loopback function. This function emulates coaxial media where transmitted packets are looped back to the receive side. Local Area Network (LAN) controllers can use the loopback feature to determine if a Media Attachment Unit (MAU) is connected and operational.

The AT-MX20T, AT-210T and AT-210TS transceivers incorporate other functions that offer improved network reliability for

workstations. The 10Base-T link integrity test function provides a continuous test of the connection to the multiport repeater.

A test pulse is periodically transmitted and expected at the companion transceiver's receive side. If the pulse is not seen on the receive side, the transceiver is placed into link test fail mode. Normal operation of the transmit side is inhibited and the "Link" LED is turned off. Normal operation is resumed when the link is re-established by the reception of a valid packet or two valid link pulses.

10Base-T transceivers also address the polarity of the receive pair wiring. In less than one second, the UTP transceiver automatically "rolls" the wire pair and allows for the proper operation of the transceiver. Also, the "Polarity" indicator on the AT-210T and AT-210TS transceivers is not illuminated when the circuitry has transposed the receive pair.

SQE/Heartbeat test status is indicated by LEDs on the AT-MX10, AT-MX10S, AT-210T and AT-210TS transceivers. The AT-MX10 and AT-MX10S transceivers utilize a two-colored LED that indicates the presence of Data Terminal Equipment (DTE) power in addition to the SQE test. The AT-210T and AT-210TS both have a single LED that indicates the status of the SQE test switch.

Specifications on next page

STATUS INDICATORS

AT-MX10 / AT-MX10S:

Power/HB Two-color Heartbeat LED

AT-MX20T:

Power Power is present from the DTE

Transmit Indicates packet is being transmitted to the media

Receive Indicates packet is being received from the media

Link Indicates a valid link exists

AT-210T / AT-210TS:

Power Power is present from the DTE

Link Indicates a valid link exists

SQE Test SQE/Heartbeat test enabled

Polarity Automatic polarity reversal has not occurred

AUI INTERFACE

Transmitter:	Typical	Range
Threshold Voltage	-200 mV	-175 to -225 mV

SQE Test Delay	800 ns	600 to 1600 ns
Duration	1000 ns	500 to 1500 ns

Collision Indication Delay	200 ns	900 ns
Assert Delay	200 ns	900 ns

Jabber Setup	45 ms	20 to 100 ms
Recovery	450 ms	250 to 750 ms

Receiver:

Start-Up Delay	500 ns	
Steady State Delay	100 ns	200 ns
Signal Amplitude	±800 mV	±550 to ±1200 mV

Loopback Steady State Delay	100 ns	
Start-Up Delay	100 ns	500 ns

COAXIAL INTERFACEInput Impedance > 100K Ω

Coaxial Tap Capacitance < 6 pf

Input / Output

Voltage:	Typical	Range
DC Offset	-0.1 V	-0.5 to 0 V
AC Offset	1.86 Vp-p	1.2 to 2.4 Vp-p

Transmit Rise/Fall Time	25 ns	±5 ns
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TWISTED PAIR CONNECTOR (RJ45)

Pin No.	Function
1	+TD
2	-TD
3	+RD
4	Not Used
5	Not Used
6	-RD
7	Not Used
8	Not Used

TWISTED PAIR INTERFACE

Transmitter:	Typical	Range
Peak Differential Signal Amplitude	2.5 V	2.2 to 2.8 V
Transmitter Jitter	±1.5 ns	±2 ns
Harmonics Content	27 dB Down	

Common Mode Output Voltage		
Start-Up Delay	100 ns	200 ns
Steady State Delay	100 ns	200 ns

Silence Voltage	±50 mV	
Duration	16 ms	8 to 130 ms
Link Test Pulse	100 ns	80 to 130 ns
Output Impedance	100 Ω	95 to 105 Ω

Receiver:

Receiver Threshold	-400 mV	-350 to -450 mV
Input Impedance	100 Ω	95 to 105 Ω
Differential Noise Rejection	300 mV	

POWER CHARACTERISTICS

Isolation:

Breakdown Voltage

AT-MX10/AT-MX10S

500 V rms 50/60 Hz for 1 min

AT-MX20T/AT-210T/AT-210TS

1500 V rms 50/60 Hz for 1 min

Supply:	Typical	Range
Voltage	12 V	11.4 to 12.6 V
Current	300 mA	500 mA

PHYSICAL CHARACTERISTICS

Dimensions:

Standard	6.4 cm x 4.6 cm x 2.0 cm (2.5 in x 1.8 in x 0.8 in)
Slim-line	6.9 cm x 4.3 cm x 2.5 cm (2.7 in x 1.7 in x 1.0 in)

Weight:

Standard	70 g (2.4 oz)
Slim-line	73 g (2.5 oz)

Temperature:

Operating	0° to 50° C
Storage	-20° to 60° C

Relative Humidity: 5% to 80% noncondensing

Electrical / Mechanical Approvals:

EMI	FCC Class A, TUV, Vfg-B
Safety	UL, CSA, TUV-GS

ORDERING INFORMATION

Part Number	Description
AT-MX10-05	10Base-2 MAU
AT-MX10S-05	10Base-2 MAU Slim-Line
AT-MX20T-05	10Base-T MAU
AT-210T-05	10Base-T MAU
AT-210TS-05	10Base-T MAU Slim-Line

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